

Water

**EPA Report to Congress on
Administration of The Marine
Protection, Research, and
Sanctuaries Act of 1972, as
Amended (P.L. 92-532)**

1984 - 1986



Report to Congress

January 1, 1984 – December 31, 1986

on Administration
of The Marine Protection,
Research, and Sanctuaries Act of 1972,

As Amended (P.L. 92-532)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20450

APR 19 1988

Honorable George Bush
President of the Senate
Washington, D.C. 20510

THE ADMINISTRATOR

Dear Mr. President:

Section 112 of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended, requires the Administrator of the Environmental Protection Agency (EPA) to submit an annual report on the administration of the ocean dumping program authorized under Title I of the Act. This eleventh report to the Congress on the administration of Title I of the Marine Protection, Research, and Sanctuaries Act is transmitted with this letter, and covers the implementation of EPA's ocean dumping program, as well as those activities necessary to implement the London Dumping Convention, during calendar years 1984, 1985 and 1986.

During the time period covered in the report, the Agency has shown its heightened commitment to protect the Nation's ocean environment through actions to establish the Office of Marine and Estuarine Protection, to increase coordination and cooperation with the U.S. Army Corps of Engineers on the designation of dredged material ocean disposal sites, and to designate the Deepwater Municipal Sludge Dump Site and begin transfer to it of court-ordered sludge dumping from the 12-Mile Site. Meanwhile, the amounts of sewage sludge and industrial wastes which were ocean dumped have remained near 1983 levels throughout the period. The Ocean Dumping Regulations are under revision to respond to two lawsuits and amendments to the Act.

The dumping into ocean waters of all material, except dredged material, is regulated by EPA permits. The U.S. Army Corps of Engineers (the Corps) issues permits for dredged materials. This report does not contain a discussion of the Corps' activities except as they affect EPA's responsibilities. We hope that the information provided in this report will be useful to the Senate in assessing the status and direction of the program.

Sincerely,

Lee M. Thomas



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 19 1988

THE ADMINISTRATOR

Honorable James C. Wright, Jr.
Speaker of the House
of Representatives
Washington, D.C. 20515

Dear Mr. Speaker:

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The dumping into ocean waters of all material, except dredged material, is regulated by EPA permits. The U.S. Army Corps of Engineers (the Corps) issues permits for dredged materials. This report does not contain a discussion of the Corps' activities except as they affect EPA's responsibilities. We hope that the information provided in this report will be useful to the House of Representatives in assessing the status and direction of the program.

Sincerely,

Lee M. Thomas



Report to Congress

January 1, 1984 — December 31, 1986

Executive Summary

The Report to Congress this year reflects major changes in the direction and implementation of the Environmental Protection Agency's (EPA) Ocean Dumping Program during the last three years. This report covers EPA's activities under the Marine Protection, Research, and Sanctuaries Act, and activities related to the London Dumping Convention, during the three calendar years, 1984-1986.

EPA established the Office of Marine and Estuarine Protection in 1984. This move reflects the Agency's continuing and heightened commitment to protection of the nation's marine waters.

In 1986, EPA Headquarters delegated its program for designating sites for disposal of dredged material, fish processing waste and for burning driftwood and other wood debris to the EPA regional offices. EPA is currently negotiating a National-level Memorandum of Understanding with the U.S. Army Corps of Engineers (the Corps) to expedite designation of dredged material ocean dumping sites.

Draft or Final EISs have been completed for 47 of the 51 Consent Agreement sites per resolution of the National Wildlife Federation lawsuit in 1980. EPA has completed the site designation process for 33 sites. Of these, 25 are Consent Agreement sites.

EPA has increased the emphasis on site management through site monitoring. EPA's data base management and analysis of monitoring data will be applied to continued designation of sites as well as to better management of existing ocean disposal sites. Monitoring at the Deepwater Municipal Sludge Dump Site and the Tampa Dredged Material Disposal

Site serve as examples which illustrate that EPA is moving in the direction of adopting a tiered monitoring strategy.

Sewage sludge disposed in the ocean has declined somewhat from the 1983 level of 8.3 million wet tons, to approximately seven and one-half million wet tons each year for 1984-1986. Municipal sewage authorities which have been dumping sludge under court order at the expired 12-Mile Sewage Sludge Disposal Site in the New York Bight, have been placed on schedules to transfer to and have started to dispose of their sewage sludge at the Deepwater Municipal Sludge Dump Site, also known as the 106-Mile Site. In designating the Deepwater Site, EPA also denied the petition by the sewage authorities to redesignate the 12-Mile Site.

Quantities of industrial wastes that were disposed under the Ocean Dumping Program declined in 1983 and remain near the 1983 amounts, averaging 0.28 million wet tons from 1984-1986.

The Ocean Dumping Regulations are currently undergoing revision to respond to two lawsuits and amendments to the Act.

EPA is working to resolve issues of major public concern that were submitted in response to the Agency's February 1985 proposed ocean incineration regulations. An ongoing EPA research program is investigating potential effects of ocean incineration. EPA is considering for designation four sites for incineration-at-sea in the following areas — Gulf of Mexico, West coast, Northeast coast and Southeast coast of the U.S.

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Introduction

The U.S. Environmental Protection Agency (EPA) presents its eleventh report to the Congress on the administration of Title I of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (the Act). This report covers the implementation of the Agency's responsibilities under Title I of the Act in carrying out the ocean dumping program, including activities conducted within EPA Headquarters and the Regions during calendar years 1984, 1985 and 1986.

The U.S. Army Corps of Engineers (the Corps), the U.S. Coast Guard (USCG), and the National

Oceanic and Atmospheric Administration (NOAA) also have responsibilities under the Act. The Corps and NOAA submit separate reports on their activities in implementing the Act; consequently, this report does not include a discussion of their activities except as they affect the responsibility of EPA.

EPA established the Office of Marine and Estuarine Protection in 1984. This move reflects the Agency's continuing and heightened commitment to protection of the nation's marine waters.



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The Marine Protection, Research, and Sanctuaries Act of 1972, as Amended (P.L. 92-532)

Purpose

The purpose of Title I of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) is to regulate the transportation for ocean dumping, and to prevent the dumping of any material in ocean waters which would unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. To implement this purpose and to control dumping in ocean waters, Title I of the Act establishes a permit program and assigns its administration to EPA and the Corps. Title I also authorizes the EPA Administrator to designate sites where ocean dumping may be permitted or prohibited.

Also under Title I, the Coast Guard is given the responsibility for conducting surveillance and other appropriate enforcement activities to prevent unlawful ocean dumping, to ensure that the dumping occurs under a valid permit, at the designated location, and in the manner specified in the permit.

Title II requires NOAA and EPA to conduct a comprehensive and continuing program of research

and monitoring regarding the effects of the dumping of materials into ocean waters. Title III gives NOAA the authority to establish marine sanctuaries.

The MPRSA is also the domestic legislation for implementing the provisions of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention), an international agreement for regulating ocean dumping, which is described later in this report.

Transportation from the United States of any radiological, chemical, or biological warfare agent or high-level radioactive waste for the purpose of dumping into ocean waters, the territorial sea, or the contiguous zone is prohibited. Transportation of other materials (except dredged materials) for the purpose of dumping is prohibited except when authorized under a permit issued by the Administrator of EPA or his designee.

Based upon considerations outlined in Section 102 of the Act, the Administrator is required to establish and apply criteria for reviewing and evaluating permit applications. To the extent that he may do so without

relaxing the requirements of Section 102, the Administrator shall apply the standards and criteria binding upon the United States under the London Dumping Convention. Permits may be issued for dumping at a site designated by EPA after determining that the dumping involved will not unreasonably degrade or endanger human health or the marine environment. Before a permit is issued, EPA must give notice and opportunity for a public hearing. Dumping of dredged material is regulated under permits issued by the Corps of Engineers in accordance with EPA criteria.

EPA is also authorized to revoke or modify permits and to assess civil penalties for violation of permit conditions. The Attorney General may initiate criminal action against persons who knowingly violate the Act.

Recent Changes

The Agency is currently working on proposed revisions to the ocean dumping regulations which will respond to the results of two lawsuits, statutory amendments, and program experience. As a result of *City of New York v. EPA*, 543 F. Supp. 1084 (S.D.N.Y., 1981), EPA is obliged to amend its regulations to remove the categorical prohibition against the ocean dumping of materials which fail the regulation's marine impact criteria. The court, in that lawsuit, ruled that EPA must consider all the relevant statutory factors

set forth in Section 102 of MPRSA, including the need for ocean dumping, and availability and impacts of land-based alternatives, in reaching a determination on whether to issue an ocean dumping permit. In *National Wildlife Federation v. Costle*, 629 F.2d 118 (D.C. Cir., 1980), the court ruled that while it was permissible under the MPRSA to treat dredged material differently than other types of material, an adequate explanation of the basis for the different treatment accorded dredged material had not been provided. The proposed regulatory revisions will respond to the results of that lawsuit.

On January 6, 1983, the President signed PL 97-424 (the Surface Transportation Assistance Act of 1982) containing an amendment to the MPRSA for the disposal of low-level radioactive waste, which required that for a period of 2 years after enactment, only research permits could be issued for the materials. After January 6, 1985, any permit for the disposal of low-level radioactive waste requires preparation of a site-specific Radioactive Material Disposal Impact Assessment by the applicant, and no permit may be issued by EPA unless authorized by Joint Resolution of both Houses of Congress. EPA has not issued any permits for radioactive waste disposal. The Agency is also developing regulations and guidance documents on site designation and packaging requirements for low-level radioactive waste materials.

London Dumping Convention

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention or LDC) is an international agreement requiring the member nations, known as Contracting Parties, to establish national systems to control all substances leaving their shores for the purpose of being dumped at sea. The Convention was negotiated in London in November 1972 and came into force on August 30, 1975, following the required 15 ratifications or accessions.

The MPRSA, which is the U.S. authority for implementing international requirements for the control of ocean dumping, was amended in 1974 and 1980 to bring the Act into conformance with the Convention.

Technical aspects of the Convention regarding types of materials and other factors are contained in three annexes. Annex I establishes a "black list" of substances whose dumping is prohibited unless they are present only as "trace contaminants" or would be "rapidly rendered harmless" in the marine environment. The substances on this list are mercury and cadmium and their compounds, organohalogen compounds such as DDT and PCB's, persistent plastics, and crude oil and petroleum by-products. Dumping of high-level radioactive wastes, and chemical and biological warfare agents is completely prohibited.

Annex II contains a category of substances requiring "special permits," as well as special care in dumping. These substances include heavy metal compounds, cyanides, fluorides, low-level radioactive wastes, and containers and other bulky wastes which could present serious obstacles to fishing or navigation. Dumping of substances not listed in Annexes I and II requires a "general permit."

Annex III sets forth factors to be considered regarding characteristics and composition of the material, method of disposal, and characteristics of the dumping site, before a permit may be issued.

The Convention provides that each Contracting Party take appropriate steps to ensure that the terms of the Convention apply to its flagships and aircraft and to any vessel or aircraft loading in its ports for the purpose of ocean dumping. Full continuous use is

to be made of the best available technical knowledge in implementing the Convention. In addition, periodic meetings and planned participation by appropriate international technical bodies is designed to keep the contents of the Annexes up to date and realistic in meeting the needs for controlling ocean pollution stemming from ocean dumping.

Consultative Meetings of the Contracting Parties have generally been convened on an annual basis since 1976. *Ad hoc* advisory groups are established to work on particular subjects when necessary. The most significant of these are the Scientific Group on Dumping, the Working Group on Incineration at Sea, and the Group of Legal Experts.

The *ad hoc* Scientific Group has met inter-sessionally on an annual basis since 1977 as the scientific and technical advisory body of the Consultative Meetings. In 1983, the Seventh Consultative Meeting established the *ad hoc* Scientific Group as the permanent Scientific Group on Dumping. The working process used by Consultative Meetings—namely, to establish *ad hoc* working groups of experts, and after considering their advice, to proceed with a view towards reaching consensus on critical questions—has proved to be effective.

The work of the Consultative Meetings has been very effective in developing and adopting amendments, regulations, consultation, test, and notification procedures, and recommendations in the form of technical guidelines. Of particular significance are the procedures for settlement of disputes; regulations and recommended technical guidelines for control of incineration at sea; the International Atomic Energy Agency (IAEA) definition of high-level radioactive waste prohibited from sea disposal and recommendations for disposal of other radioactive wastes at sea; and interim guidelines for implementation of Paragraphs 8 and 9 of Annex I, which refer to the "rapidly rendered harmless" and "trace contaminants" provisions.

The LDC recognizes the IAEA as the international authority to define high-level radioactive waste. In 1984 and 1985, EPA provided the U.S. representative to the technical efforts of the IAEA to revise the definition

of high-level radioactive waste and refine the international guidance on ocean disposal pursuant to the London Dumping Convention.

The major issue at the Seventh, Eighth, and Ninth Consultative Meetings (LDC 7, LDC 8, and LDC 9) in 1983, 1984, and 1985 was whether to amend the Convention to prohibit the ocean disposal of low-level radioactive wastes. Several nations adopted resolutions at LDC 7, 8, and 9 calling for voluntary moratoria on the ocean disposal of low-level radioactive wastes until a variety of issues were studied, including a scientific review by an expert panel. The report of this panel was presented at LDC 9.

The report of the expert panel did not contain firm conclusions regarding whether there was scientific evidence to support a prohibition of ocean dumping of low-level radioactive wastes. There was a diversity of views expressed by individual Contracting Parties about what conclusions could be drawn from the expert panel report, and efforts to reach a consensus were unsuccessful. A resolution was passed at LDC 9 calling for a legally non-binding moratorium on ocean dumping of low-level radioactive wastes pending completion of additional studies and assessments.

In other areas of interest, consensus was reached on adoption of guidelines for the implementation of Annex III of the Convention, criteria for allocating substances to Annexes I and II of the Convention, and a long-range strategy for implementing the Convention.

At the Tenth Consultative Meeting (LDC 10) in 1986, agreement was reached to set up a panel of experts to examine the wider political, legal, social, and economic aspects of low-level radioactive waste disposal at sea, and a questionnaire was developed to solicit technical input from contracting parties to develop detailed guidance for examining these issues. These aspects are part of the additional studies and assessments identified at LDC 9. Special guidelines on the implementation of Annex III for dredged material were adopted to clarify the application of the Annex III factors for ocean disposal of dredged material as a special kind of waste. Efforts were begun

to review the overall structure of the Annexes to see if the regulatory approach incorporated in the Annexes can be improved.

The United States is represented at the LDC by a delegation appointed by the State Department. The delegation includes a U.S. representative and advisors on particular topics. U.S. policy positions are developed through an interagency working group under State Department leadership.

Table I lists the contracting parties to the LDC as of December 31, 1986.

Table I. Contracting Parties to the London Dumping Convention as of December 31, 1986

Alghanistan	Libyan Arab Jamahiriya
Argentina	Mexico
Belgium	Monaco
Brazil	Morocco
Byelorussian SSR	Nauru
Canada	Netherlands
Cape Verde	New Zealand
Chile	Nigeria
Cuba	Norway
Denmark	Oman
Dominican Republic	Panama
Finland	Papua, New Guinea
France	Philippines
Gabon	Poland
German Democratic Republic	Portugal
Germany, Federal Republic of	Seychelles
Greece	Solomon Islands
Guatemala	South Africa
Haiti	Spain
Honduras	Surinam
Hungary	Sweden
Iceland	Switzerland
Ireland	Tunisia
Italy	Ukrainian SSR
Japan	United Arab Emirates
Jordan	USSR
Kenya	United Kingdom
Kiribati	United States
	Yugoslavia
	Zaire



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The Permit Program

The Ocean Dumping Regulations and Criteria (40 CFR Parts 220-229) published January 11, 1977, identify five types of permits under the Ocean Dumping Program. They are General, Interim, Special, Emergency, and Research Permits.

General Permits

General Permits are established by amendment to the the Ocean Dumping Regulations. Three General Permits were established in the 1977 regulations. They are for burial at sea, transportation of target vessels by the U.S. Navy for the purpose of sinking the vessels in ocean waters in testing ordnance and providing related data, and transportation and disposal of vessels under specified conditions. No other General Permits have been established since 1977.

Interim Permits

The Agency has used interim permits to control the burning at sea of wood debris collected from the New York Harbor area, while continuing to engage in ongoing evaluations of this activity. A total of four such permits were issued in 1985 and 1986, and the most recent of these permits required extensive air and water quality monitoring with subsequent data analyses to verify the impacts of such burning at the site and the shoreline. The burning is undertaken to

dispose of driftwood, wood pilings and other wood debris removed from New York Harbor and currently takes place at an interim designated site, known as the Woodburning Site, which has historically been used for this purpose. As part of its ongoing evaluations, the Agency currently is preparing an EIS, which incorporates the monitoring results and other data, for use in evaluating a site for formal designation for this activity.

Special Permits

Five special permits were in effect during 1984, six during 1985, and seven during 1986, with a maximum duration of three years for each permit, including permits for fish wastes and drilling muds and cuttings. Table II lists the special permits in effect during the three years 1984-1986, and the quantities and types of materials dumped by site.

Emergency Permits

One emergency permit was issued in 1984 for dumping of 7,000 canisters of aluminum phosphide pellets. The material had been brought into the U.S. as cargo, and during unloading operations a shipping container exploded, killing one person and damaging other parts of the shipment. When

exposed to water vapor in the atmosphere, this material forms phosphine gas, an extremely toxic and unstable compound. The Agency considered the potential impacts to the marine environment of dumping this material and concluded that after reacting with seawater, the effects of ocean dumping would be temporary and localized. Since the material in its existing state posed a major potential threat to public health and a review of other possible disposal measures indicated such alternatives were not feasible, an emergency ocean dumping permit was issued for disposal of the material in the Gulf of Mexico. No emergency permits were issued in 1985 or 1986.

Research Permits

No applications were received, nor were any permits issued in 1984. Two applications for incineration-at-sea research permits were received in 1985; however, no permits were issued. Two applications were received from fish canneries, and Region IX prepared a research permit in 1986 to cover this dumping activity.

**Table II. Special Permits Issued—
Quantities of Materials Dumped in 1984, 1985, and 1986**

	Quantities in Thousand Wet Tons		
	1984	1985	1986
Region II			
Acid Waste Site (NY Bight Apex): Allied Chemical Corp. ¹ NY	40	40	34
Deepwater Industrial Waste Site:			
DuPont -- Edge Moor ² DE	19	0	140
DuPont -- Grasselli ³ NJ	146	100	73
Cellar Dirt Site (NY Bight Apex): Port Liberte, NJ	—*	—*	0
Region IX			
Fish Wastes Site			
Samoa Packing, American Samoa	8	4.6	21.4
Star Kist, American Samoa	7.9	20.3	24.1
Oil Drilling Muds and Cuttings THUMS Long Beach, CA	—*	2.7	13.6
	<u>220.9</u>	<u>167.6</u>	<u>306.1</u>

¹ Hydrochloric acid waste

² Aqueous iron and miscellaneous chlorides and hydrochloric acid wastes

³ Solution of alkaline sodium wastes

*No permit issued

Court Orders

As explained in the last Report to Congress, nine municipal sewage authorities which had previously held interim permits are dumping sewage sludge pursuant to court orders issued by United States district courts in New York and New Jersey. These authorities have been required to submit permit applications to the Agency, and as will be explained in more detail in the chapter on sewage sludge dumping, currently are shifting their dumping from the 12-Mile Site to the Deepwater Municipal Sludge Dump Site. Table III lists the authorities dumping under court orders and the amounts dumped under such orders in 1984, 1985, and 1986.

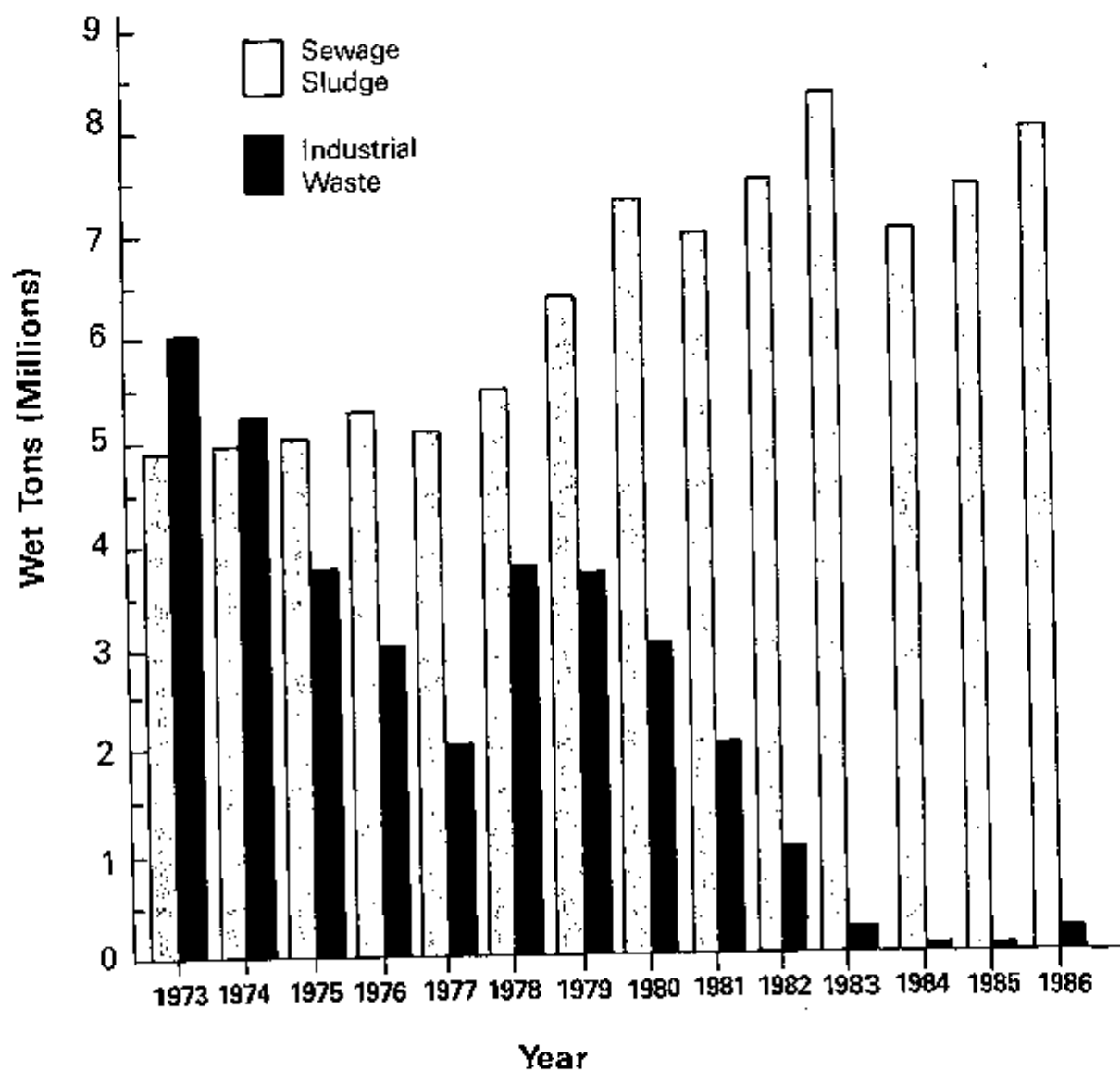
Figure 1 shows the total amount of ocean dumping of industrial waste and sewage sludge

from 1973-1986. The amounts of industrial wastes that were ocean dumped under EPA permits show a continued downward trend and have been decreased by over two thirds from 1982 to 1983. They have remained near the 1983 levels in each of the three years 1984-1986.

The ocean dumping of sewage sludge has occurred under court order since 1981. The amounts of sewage sludge decreased somewhat during the years 1984-1986, from a high in 1983 of 8.3 million wet tons. However, there is an increase from 7.0 million wet tons in 1984 to 7.9 million wet tons in 1986. It is difficult to determine if there is a significant difference in the amounts of solids actually dumped because these quantities are reported in wet tons. The differences may simply be attributed to the degree of dewatering.

Table III. Quantities of Sewage Sludge Dumped Under Court Order in 1984, 1985, and 1986

	Quantities in Thousand Wet Tons		
	1984	1985	1986
Region II			
Sewage Authorities			
Bergen County Utilities Authority NJ	255	309	353
Joint Meeting of Essex and Union Counties NJ	385	341	238
Linden Roselle Sewerage Authority NJ	235	95	93
Middlesex County Utilities Authority NJ	966	1,039	1,018
Nassau County Dept. of Public Works NY	520	576	709
New York City Dept. of Environmental Protection NY	3,085	3,345	3,591
Passaic Valley Sewerage Commission NJ	854	884	1,317
Rahway Valley Sewerage Authority NJ	160	187	98
Westchester County Dept. of Environmental Facilities NY	539	470	506
	6,999	7,246	7,923



Note: For the purpose of this graph, Industrial Waste Category also includes Fish Waste and Construction Debris

Figure 1. Sewage Sludge and Industrial Waste Ocean Disposed in U.S. Waters Between 1973 and 1986

Table VI. Newly Requested Ocean Disposal Sites as of December 31, 1986

<u>Sites</u>	<u>Type of Waste</u>
Mayaguez, PR	Fish Waste
Mud Dump Site replacement	Dredged Material
Ft. Myers Beach, FL	Dredged Material
Tampa 30-Mile Site, FL	Dredged Material
San Francisco (Deep Water), CA	Dredged Material
Kwajalein Atoll, Trust Territory	Fish Waste
Pago Pago, Amer. Samoa	Dredged Material
Saipan, CNMI*	Dredged Material
Grays Harbor, WA	Dredged Material
Akutan, AK	Ash Waste
Terminal Island, CA	Fish Waste

*CNMI=Commonwealth of the Northern Marianas Islands



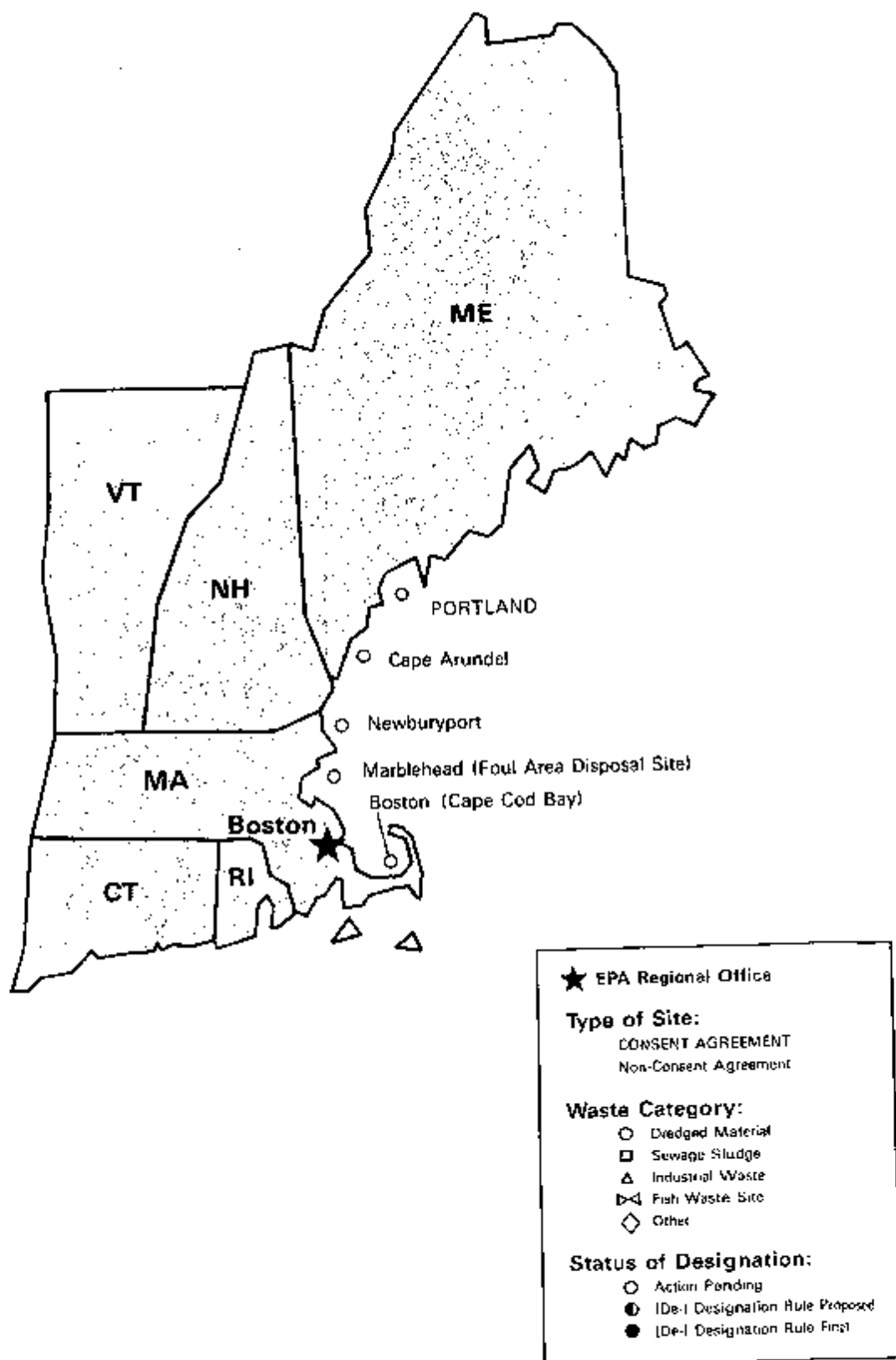


Figure IV. Region I (5 Sites) Ocean Dump Site Designation Status

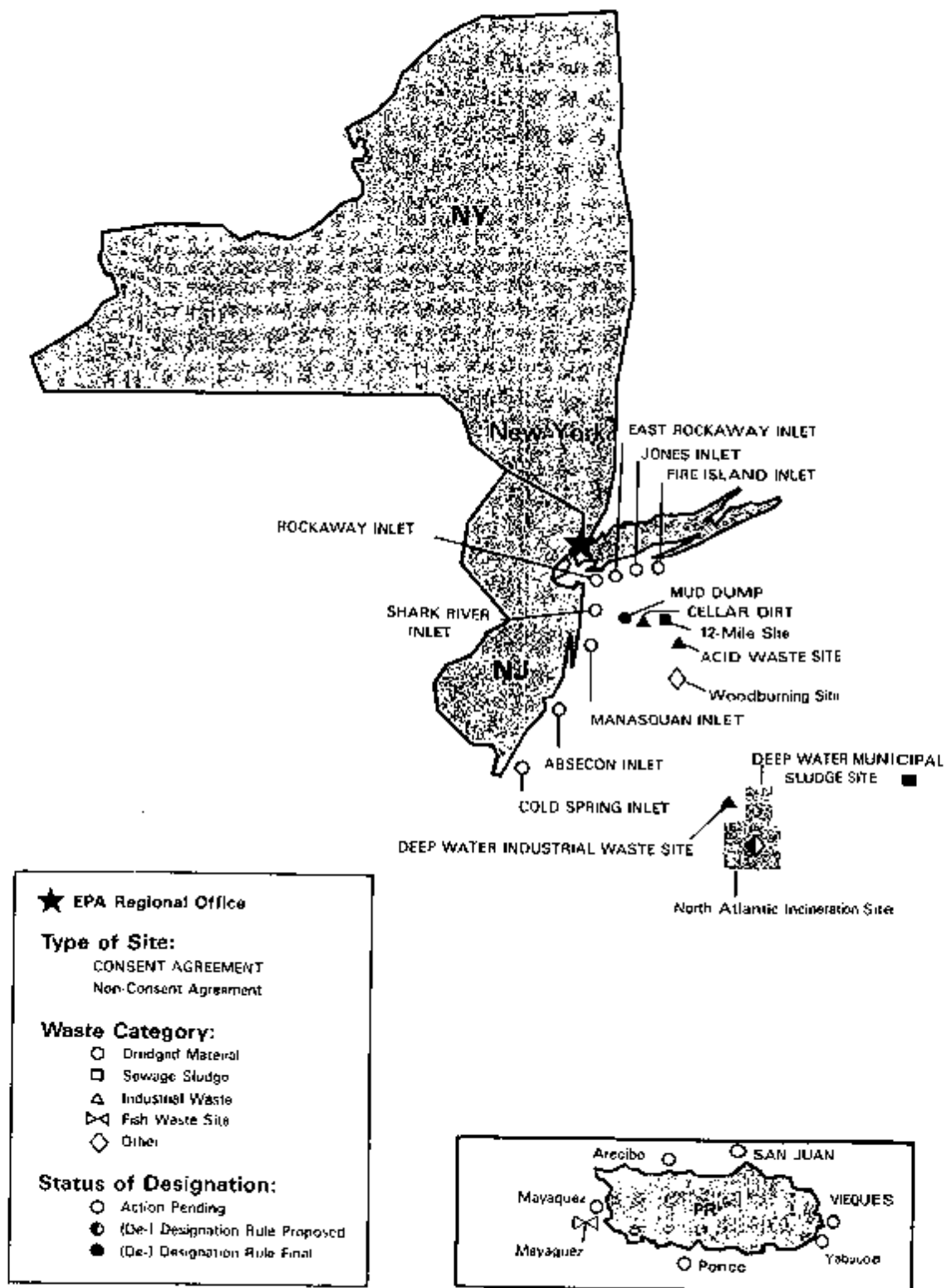


Figure V. Region II (23 Sites) Ocean Dump Site Designation Status

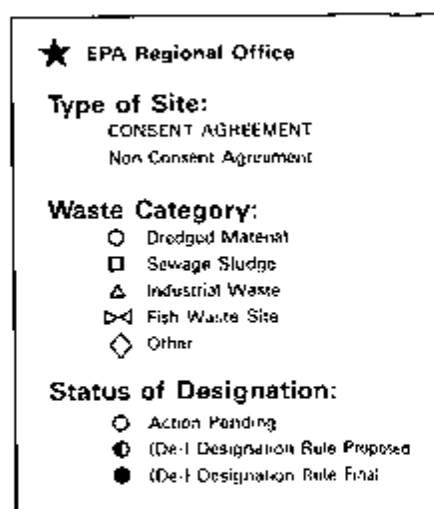
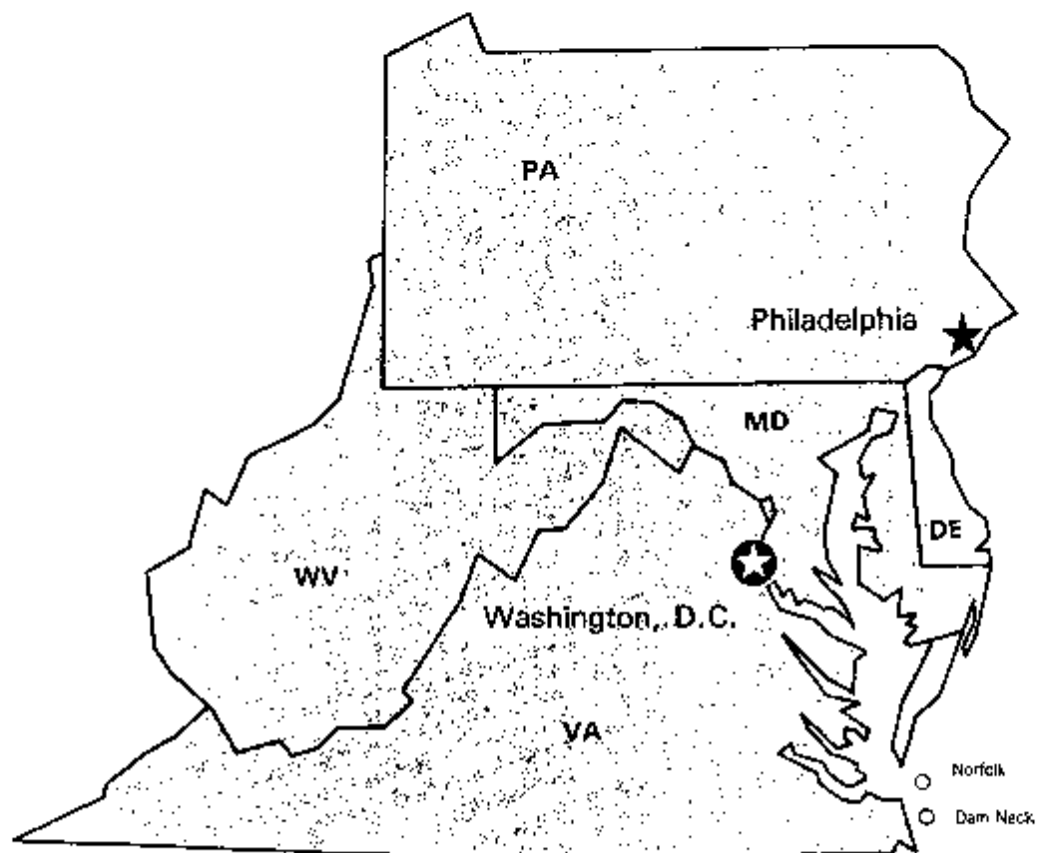


Figure VI. Region III (2 Sites) Ocean Dump Site Designation Status

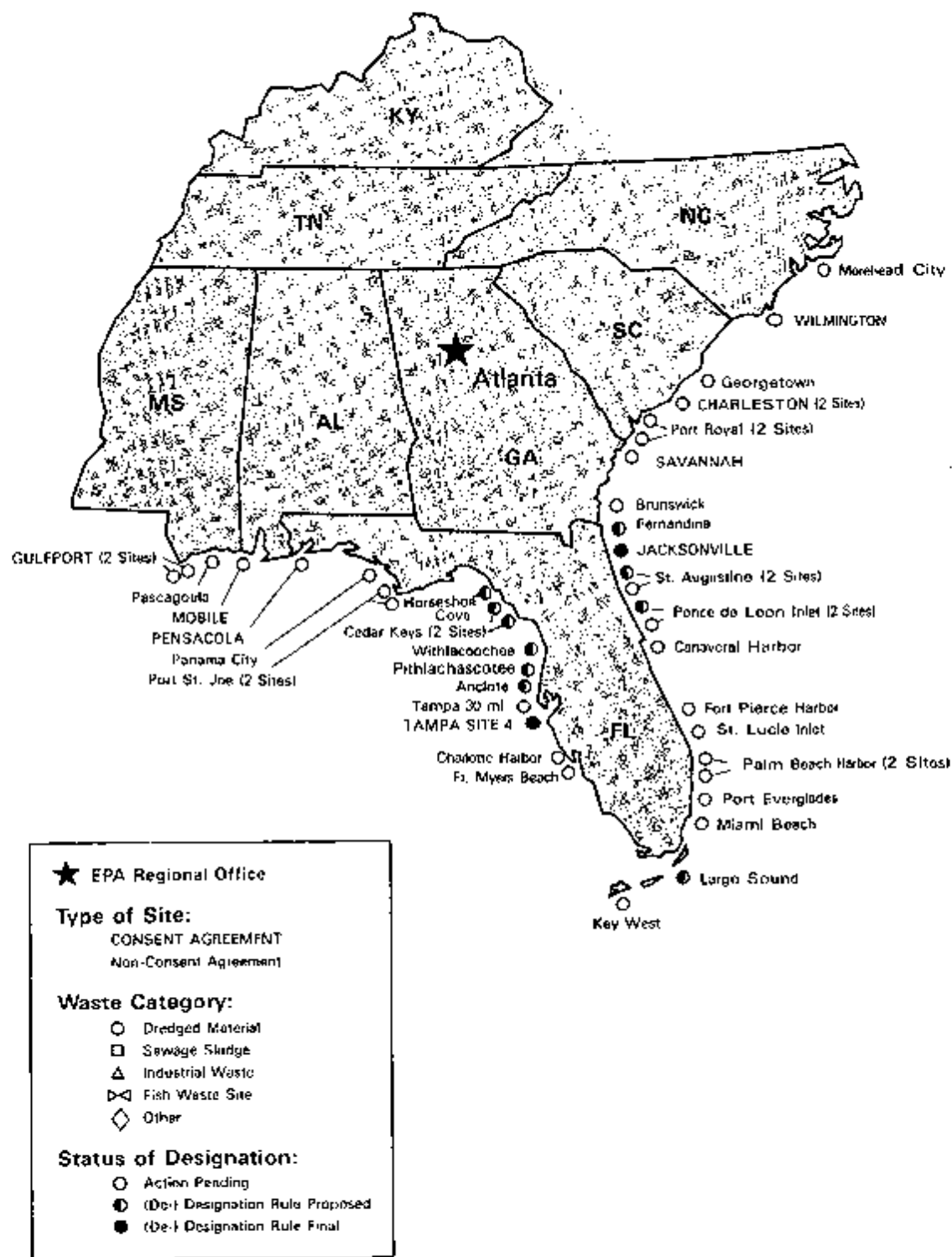


Figure VII. Region IV (42 Sites) Ocean Dump Site Designation Status

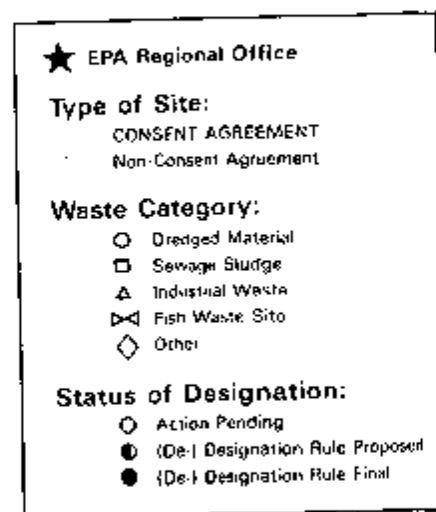
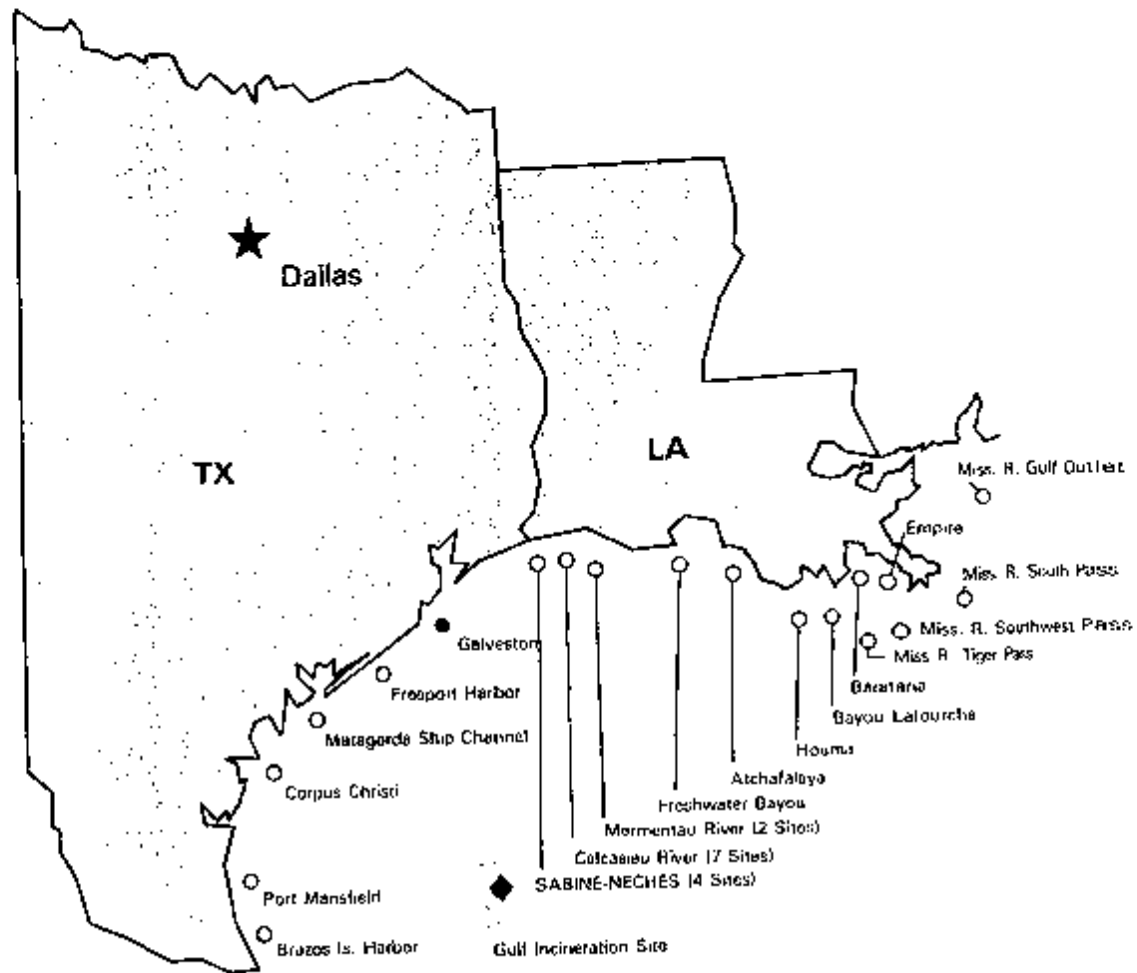


Figure VIII. Region VI (30 Sites) Ocean Dump Site Designation Status

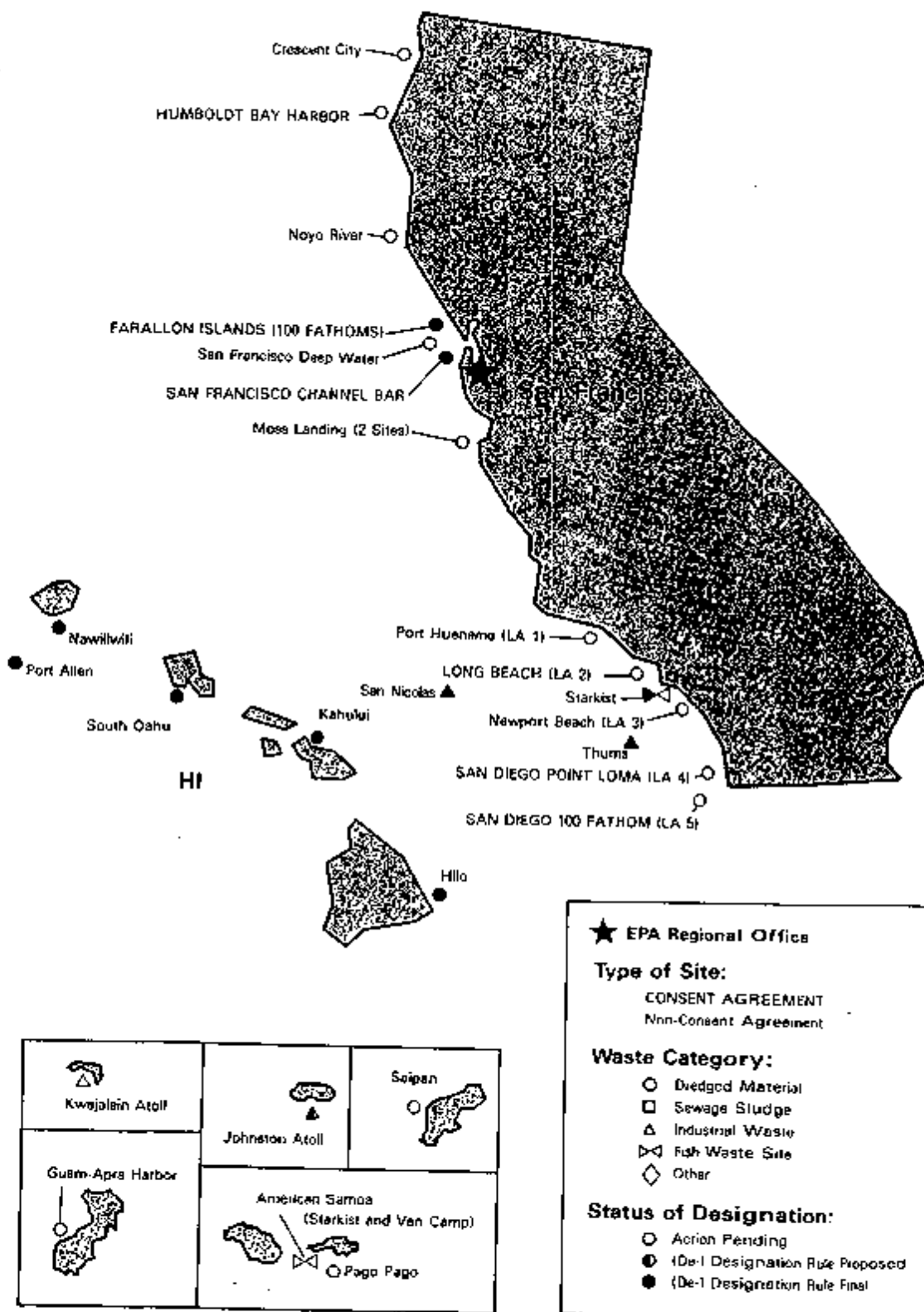


Figure IX. Region IX (27 Sites) Ocean Dump Site Designation Status

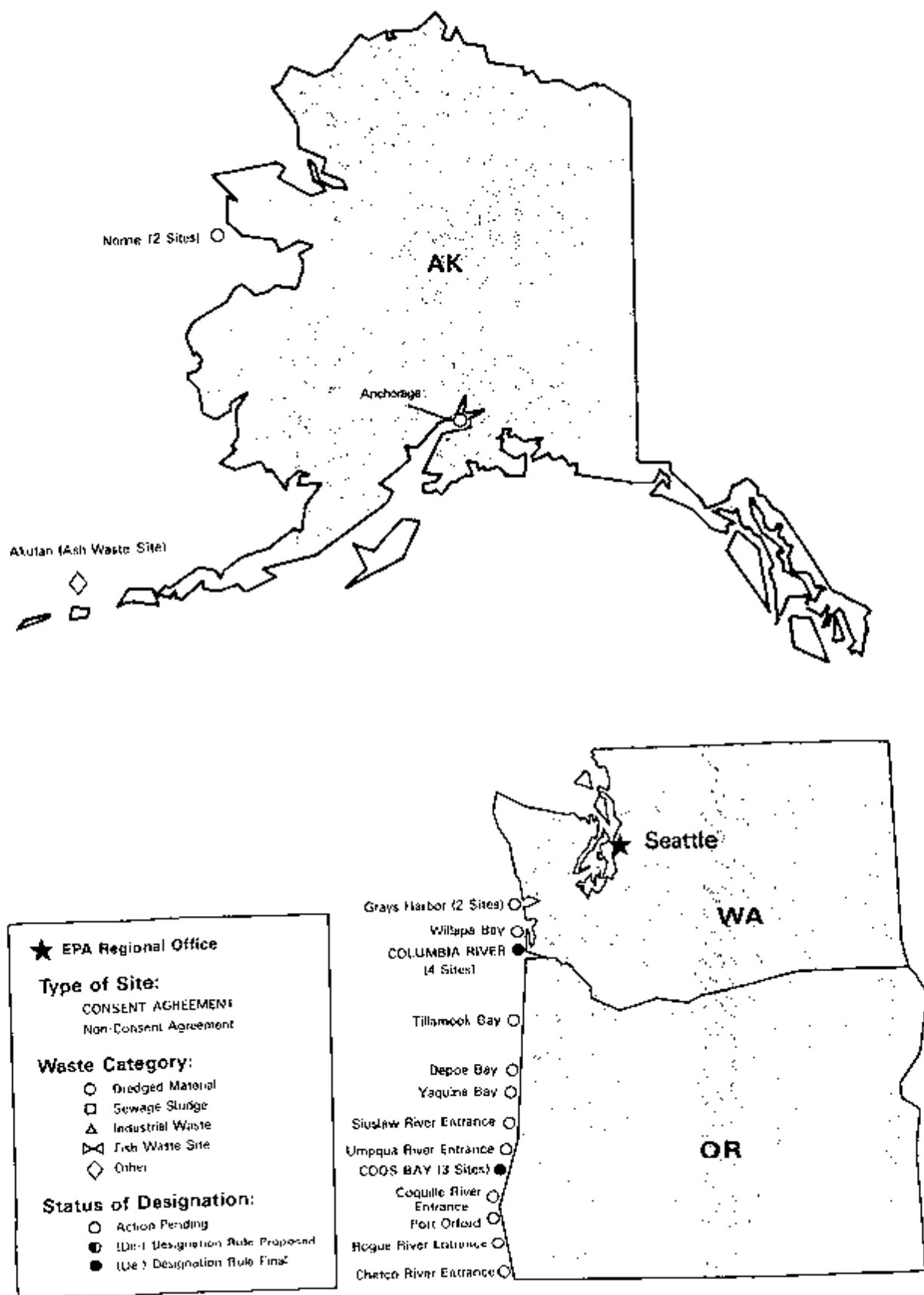


Figure X. Region X (23 Sites) Ocean Dump Site Designation Status



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Delegation of Site Designation Authority for Dredged Material Disposal

On December 23, 1986, EPA Headquarters delegated responsibility to the Regional offices for the designation of ocean dumping sites for dredged material. Regional delegation will enhance local coordination, and expedite the site designation decisionmaking process. In addition to sites for dredged materials, authority was also delegated to designate sites for fish wastes when a permit under Section 102 of the MPRSA is required, and for woodburning in Region II, as these sites and activities were deemed to be more appropriately handled at the regional level.

The EPA Office of Marine and Estuarine Protection (OMEP) published a final guidance manual, "Ocean Dumping Site Designation Delegation Handbook for Dredged Material," for carrying out these delegated responsibilities (September 30, 1986) after EPA Regional offices' and the Corps of Engineers' review and comments. OMEP also held regional workshops to train Regional personnel.

In a further effort to expedite the designation of ocean dumping sites for dredged materials, EPA began negotiating a national umbrella Memorandum of Understanding (MOU) with the Corps of Engineers in 1986. The MOU should facilitate and enhance the cooperative effort between the agencies.

Site Management

It is EPA's intention that all monitoring plans for ocean dumping at designated sites adopt a tiered monitoring approach, such as the one described in a paper titled "Tiered Ocean Disposal Monitoring Will Minimize Data Requirements," presented at the Oceans '86 Conference (MTS/ IEEE Conference, September 1986, Washington, DC; Volume 3 of the Conference Proceedings). The objective of tiered monitoring is to generate reliable information cost-effectively for site management decisionmaking. This is accomplished by concentrating monitoring efforts on verification of predictions that regulatory requirements and objectives are or will be met. Data collection requirements will be based upon the potential for impact. For many dredged material sites, this may minimize data collection beyond site boundaries. Information, such as data on site characterization and marine resources, waste characteristics and disposal operations will be evaluated to determine monitoring requirements.



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Municipal Sludge Disposal

On April 1, 1985, EPA sent letters to the nine New York and New Jersey municipal sewage authorities advising them of the decision to deny redesignation of the 12-Mile Site, and requesting that they submit schedules for the shifting of dumping operations to the Deepwater Municipal Sludge Dump Site (DMSD Site). EPA then proceeded to negotiate phase-out schedules with each of the sewage authorities. The negotiated schedules provide for the complete cessation of all dumping of municipal sludge at the 12-Mile Site by December 15, 1987.

The six New Jersey sewage authorities formed a "joint venture" to manage their future sludge dumping and have contracted with private barging operations for the shift. The authorities committed to hauling a net total of 25% of their sludge to the DMSD Site through December of 1987, prior to the total phase-out going into effect.

New York City began dumping 10% of its sludge at the DMSD Site in April 1986. The city decided that it wanted to have its own fleet of vessels and is in the process of constructing three new barges. The new barges will be brought on line beginning in June 1987, and will take 40% of the sludge to

the DMSD Site by September, 75% by November, and 100% by the deadline of December 15, 1987.

The 12-Mile Sewage Sludge Site, located in the New York Bight, has been used since 1924 for the ocean dumping of municipal sludge. In 1973, subsequent to the enactment of the Marine Protection, Research, and Sanctuaries Act, EPA designated this area as an "interim" site to be used primarily for the dumping of municipal sludge. The 12-Mile Site (and the Alternate 60-Mile Site) were approved by EPA for use for the disposal of sewage sludge in 1979. Final designation of these sites expired on December 31, 1981.

Petitions to redesignate the 12-Mile and 60-Mile Sites were received by EPA from seven of the nine sewage authorities dumping under Federal court orders. EPA published a public notice of receipt of these petitions and requested public comments in December of 1982.

On May 4, 1984, EPA published a Notice of Tentative Denial of Petitions to Redesignate the 12-Mile Site and scheduled three public hearings to receive comments on this proposed action. The basis for the tentative denial was that continued use of the

site would be inconsistent with criteria set forth in Section 102(a) of the Marine Protection, Research, and Sanctuaries Act and implementing regulations, including:

1) Impacts of sludge dumping at the site are not confined to the Site itself, but are dispersed widely throughout the Bight Apex. Adverse impacts at the Site at least in part contributed to by sludge dumping include:

a) bacterial contamination and closure of shellfishing areas;

b) perturbations in water quality in and adjacent to the site;

c) elevated levels of toxic metals and organohalogenes in bottom sediments in and near the site including known fishing areas, and within five nautical miles of coastal beaches;

d) community changes in relative abundance and diversity of species;

e) sublethal toxicity effects in economically valuable species;

f) bioaccumulation of certain metals and organohalogenes in fish and shellfish.

2) The Site is located in an area of heavy commercial and recreational navigation and is in a Coast Guard precautionary zone;

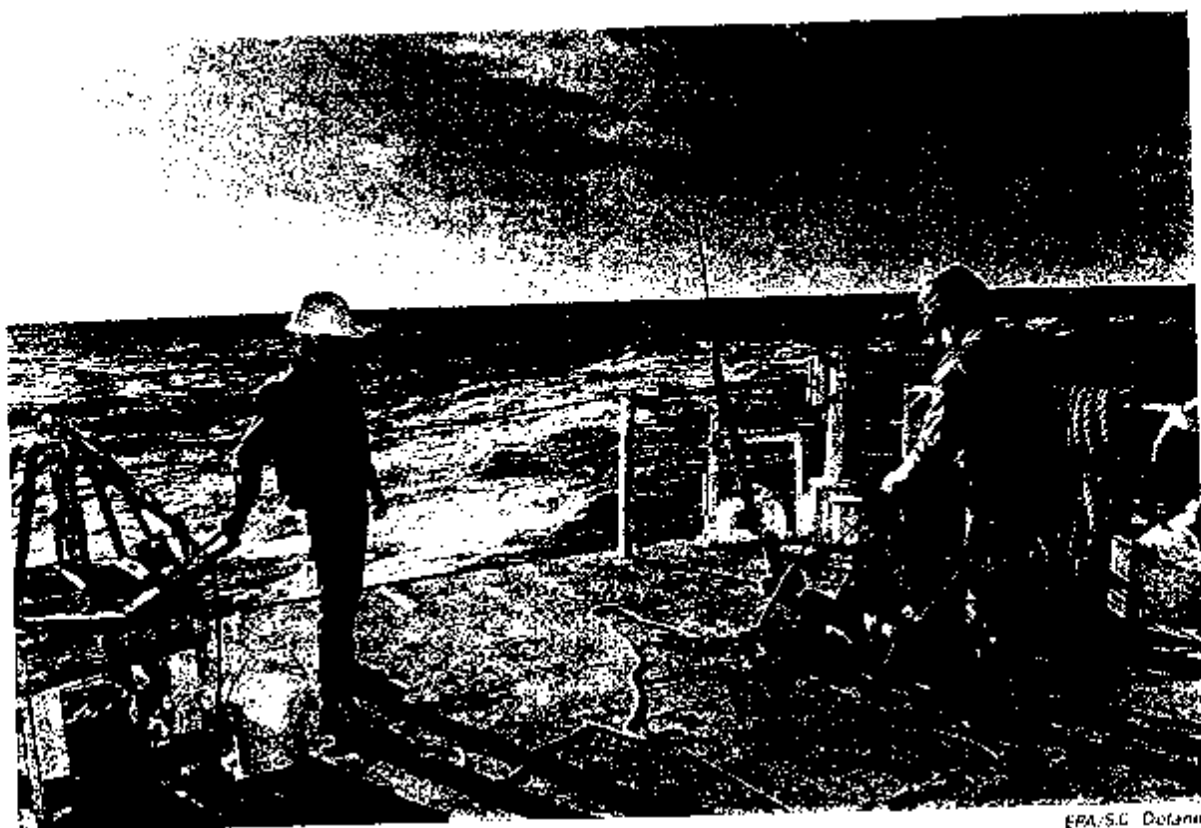
3) The 12-Mile Site is not located off the Continental Shelf.

Three public hearings were held in June 1984 in the New York/New Jersey area.

On April 11, 1985, EPA published its Final Determination to Deny the Petitions to Redesignate the 12-Mile Site (50 FR 14336). The DMSD Site was designated for sewage sludge on May 4, 1984 (49 FR 19005). The action was taken after considera-

tion of public comments, and was designed to protect the coastal waters and shores from adverse environmental impacts.





EPA/S.C. Delaney

Monitoring at the Deepwater Municipal Sludge Dump Site (DMSD)

Region II of EPA is responsible for DMSD Site management and monitoring to assure that dumping activities and the site continue to meet the ocean dumping and site designation criteria, respectively. Municipalities which were required to relocate dumping operations to the DMSD Site were requested by EPA on July 18, 1986 to submit or revise their permit applications. In conjunction with the final designation of the DMSD Site, EPA announced that it will review the site management information to determine whether as a result of the disposal activities, the site continues to meet the site designation criteria found at 40 CFR 228.5 and 228.6. This will be accomplished by periodically monitoring the effects of disposal, measuring the rates of disposal, and estimating the extent of continued disposal at the site.

EPA has developed a monitoring program for the DMSD Site. In 1985, a work group of EPA and NOAA representatives was convened to develop the monitoring program. An advisory committee comprised of representatives of NOAA, EPA, State government, and other interested parties is being formed to review the monitoring data on a continuing basis and make periodic recommendations to

the DMSD Site management authority (the Regional Administrator). The monitoring program consists of tiers of activities including compliance, nearfield, farfield, marine resource, and oceanic process monitoring. The monitoring program is designed to address specific objectives and data needs which will enable EPA to perform the assessments described above. Successive monitoring activities in the tiered process will use information provided by previous tiers. Careful attention is being paid to issues raised during the site designation such as concern for impacts on beaches and nearshore waters and fishery resources. The tiered approach will allow EPA to focus on major concerns in a step-by-step fashion which is cost effective but focuses on these important issues first.

In order to assess potential impacts related to sludge dumping at the site, EPA will compare baseline information to conditions present as dumping operations proceed. Monitoring surveys have been conducted at the DMSD Site vicinity by EPA, NOAA, and industrial permittees since 1974. A concerted effort was made early in the developmental stages of the monitoring program to identify information from other programs within EPA (such as

EPA's Office of Radiation Programs) and outside EPA (from municipalities, industries, NOAA/National Marine Fisheries Service, the Interior Department's Minerals Management Service, and Department of Energy) to use in the development of the monitoring program and in future impact analyses. Most of this information is documented in the draft document "Studies Conducted in the Vicinity of the 106-Mile Deepwater Municipal Sludge Site."

EPA has collected information in surveys over the past three years, prior to the initiation of sludge dumping operations. These surveys were conducted in July 1984, August (two surveys) and November 1985, and February 1986 to collect sediment and water quality samples and to provide endangered species information. Nearfield effects and potential transport and dispersion of the sludge are being evaluated first; other phases of the multi-year plan will be implemented as these data become available.

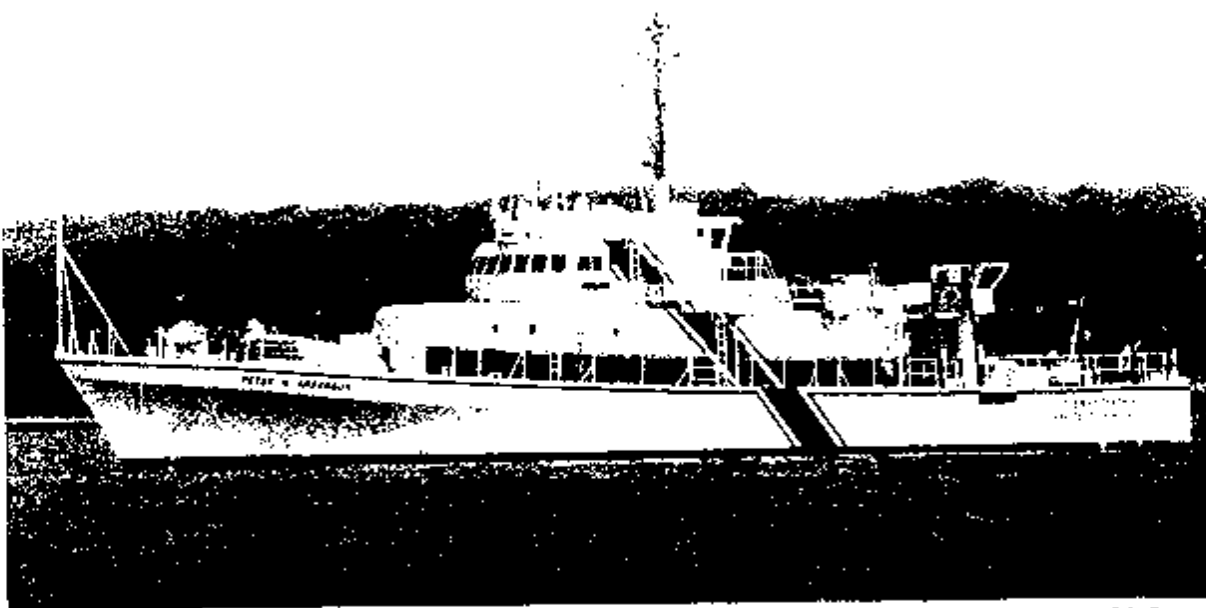
EPA has established baseline stations for comparisons of surface, mid-water, and near-bottom water and to collect sediment samples, located within, at the boundaries, immediately outside, and beyond the dump site. Samples collected from these stations will be analyzed for a suite of parameters for comparison with baseline data. Samples for impact analyses will focus on a smaller set of indicators; however, the baseline data are intended to allow for comparison with any number of alternate impact indicators, as may prove necessary. Procedures for analyses of the EPA baseline samples are documented in the report titled "Analytical Procedures in Support of the 106-Mile Deepwater Municipal Sludge Site Monitoring Program." Procedures for at-sea sample processing and sample collection are contained in the draft document titled "Sample Collection Quality Assurance/Quality Control Procedures in Support of the 106 Mile Deepwater Municipal Sludge Site Monitoring Program."

Key samples (and their respective field replicates) will be analyzed for the following parameters, as

allowed by storage and sample size: metals (e.g., silver, cadmium, chromium, copper, iron, mercury, lead, zinc), organics including aromatic hydrocarbons, (e.g., polyaromatic hydrocarbons, aldrin, dieldrin, chlordane, DDT, heptachlor, toxaphene), PCB isomers, pesticides, and coprostanol. Sediment samples will generally be analyzed for grain size and *Clostridium*, as well. Infaunal analyses will be conducted for selected samples collected. Water quality samples will also be analyzed for total suspended solids and adenosine tri-phosphate. Standard oceanographic data have also been collected with all field samples.

Since the initiation of regular sewage sludge dumping operations on March 17, 1986, EPA conducted impact assessment surveys for the DMSD Site. A survey was conducted in August 1986 to collect preliminary information on sludge behavior within the site and in the immediate vicinity. An in-depth study is planned to assess sewage sludge plume characteristics, initial impact, and near field fate.

Activities on the August 1986 survey were designed to obtain water column measurements of specific tracers of sludge to determine whether sewage sludge was transported in detectable concentrations to the dumpsite boundary. Surface and subpycnocline water column measurements were taken at selected reference stations outside of the dumpsite. Hydrographic and current data in the vicinity of the dumpsite and endangered species reports were also made on this cruise. The plume was visible throughout the study period; in addition, drogues were deployed to track the movement of the waste field. Samples were collected in the waste field at the point of discharge and at the dumpsite boundary. These samples and the reference station samples are being analyzed for the required compounds. Results of this 1986 survey will be very important for establishing the direction of future monitoring work at the site.



EPA/S.C. Detoney

OSV Peter W. Anderson

In June 1985, EPA's survey vessel—previously the *OSV Antelope*—was renamed as a tribute to EPA scientist Dr. Peter W. Anderson, who devoted ten years of his life to research of the oceans and waterways of the United States.

The *OSV Peter W. Anderson* (The *Anderson*) is used by EPA for ocean monitoring and site designation field studies. It is fully equipped with three laboratories—a wet lab for initial biological sample processing, a chemistry laboratory, and a microbiology laboratory—as well as a computerized survey center from which survey operations are conducted.

The *Anderson* is staffed by both an operating crew (15 persons) and a scientific crew (up to 15 persons), for a total maximum crew complement of 30 persons. The operating crew (Captain, mates, engineers, and deck personnel) is supplied by MAR, Inc., of Ft. Lauderdale, Florida, under contract to Marine Operations Division of the Office of Marine and Estuarine Protection. The scientific crew includes a Chief Scientist, responsible for each mission, who reports to a Supervisory Chief Scientist in EPA Headquarters in Washington, D.C., and additional scientific crew to accomplish each mission. The scientific crew may be personnel from EPA Headquarters, Regional offices, other Federal agencies, EPA contractors, or university personnel.

On-board survey equipment includes over-the-side sampling gear, including deep water sampling

capabilities, laboratory analytical equipment, an underwater television system with taping capabilities, and a sidescan sonar unit. The *Anderson* has equipment onboard to obtain samples from the water column, sediments beneath the sea, or emissions from incinerator vessels. The *Anderson* can collect samples of dredged material, industrial waste or sewage sludge.

In 1984, surveys of ocean dredged material disposal sites included five sites around Puerto Rico. Also included were three surveys conducted by EPA divers on the Tampa Harbor Project disposal site. These surveys are being conducted as a result of agreements reached between EPA, the Corps of Engineers, and Manatee County to monitor closely for any adverse effects caused by ocean disposal of dredged material.

During 1985, 15 monitoring and baseline data collection cruises were conducted, including the former Philadelphia sewage sludge disposal site, proposed ocean incineration sites, the Deepwater Municipal Sludge Dump (DMSD) Site, and the Tampa Harbor site. The incineration and DMSD Site surveys involved collection of surface water, sub-thermocline water, and bottom sediments from as deep as 9,000 feet. The *Anderson* also assisted NOAA's Marine Sanctuary Program in its pre-disturbance survey of the *USS Monitor* Project, which included remote sensing (underwater videotape and still color photography), site

mapping, and environmental monitoring of the *USS Monitor* site.

In addition, a preliminary survey was done to obtain baseline data at four potential fish waste disposal sites. Information gathered will characterize the present condition of the marine environment, and will provide baseline water quality and benthic reference data for each of the four potential dump sites.

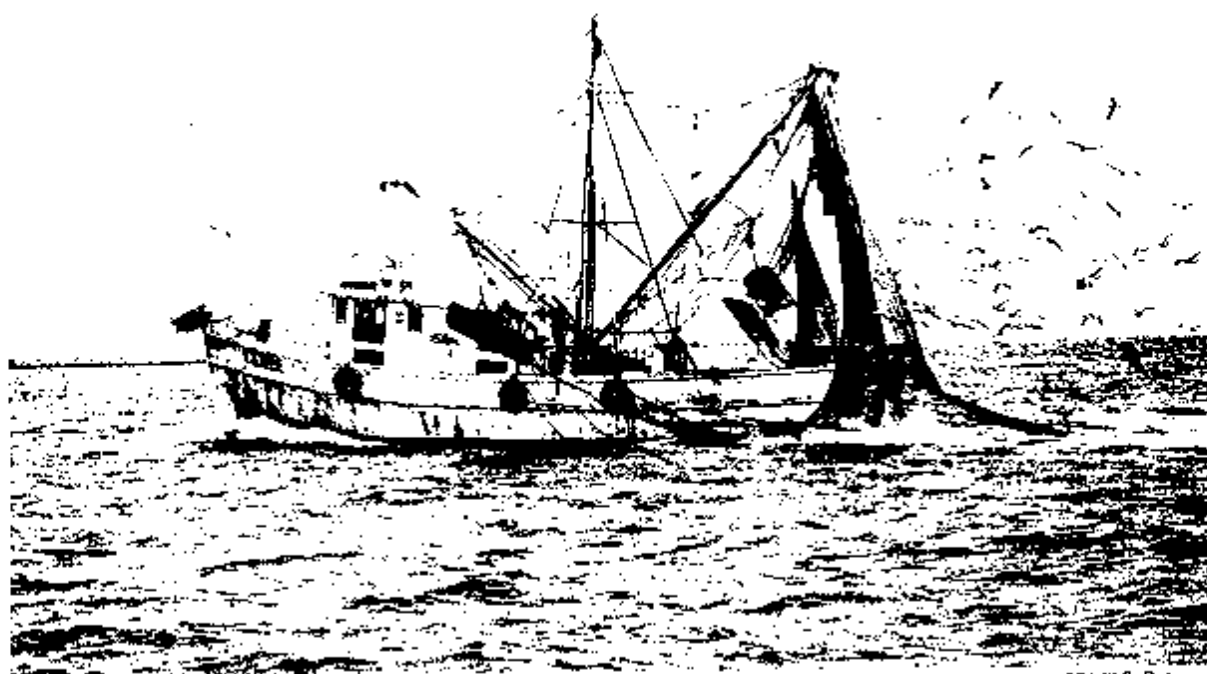
During 1986, 16 surveys were completed by the *Anderson* at 23 ocean disposal sites. In addition, technical assistance was provided to NOAA in their continuing study of the *USS Monitor* National

Marine Sanctuary, to EPA's Office of Radiation Programs in a recovery of one of their deep ocean current meter arrays, and to the Office of Public Affairs, in the preparation of a documentary videotape on the *Anderson*.

Sites surveyed during the years 1984-1986 are listed in Table VII. Sites listed are dredged material sites, unless noted otherwise. The number of surveys conducted at a particular site is indicated by the number of X's. The *Anderson* also conducted a data retrieval survey for NOAA, and an equipment calibration survey for the Naval Oceanographic Research and Development Activity during 1985.

Table VII. Sites Surveyed from 1984-1986

Region	Survey Site	1984	1985	1986
I	Cape Cod Bay fish waste, MA (data collection—4 sites)		X	X
	Boston (Cape Cod Bay), MA			X
II	Deepwater Municipal Sludge Dump Site	X	X	X
	New York Bight	Various Sites	Various	Various
	North Atlantic Ocean Incineration Site		XX	X
	San Juan, PR	X		
	Arecibo, PR	X		
	Mayaguez, PR	X		
	Ponce, PR	X		
	Yabucoa, PR	X		
III	Norfolk, VA	X	X	X
	Dam Neck, VA	X	X	X
	Ocean City, MD (outfalls)	X	X	
	Bethany Beach, MD (outfalls)	X	X	
	Philadelphia Sewage Sludge Site	X	X	
	Delaware River and Estuary, DE (oxygen demand studies)			X
	Delaware Wreck, DE (monitoring)			X
	Chesapeake Bay (Reg. III data collection)		X	
IV	Morehead City, NC	X		X
	Wilmington, NC	X		X
	Cape Hatteras, NC		X	
	Southern Incineration Site Study area	X		
	Jacksonville, FL			X
	Palm Beach, FL		X	
	Port Everglades, FL	X		X
	Charlotte Harbor, FL		X	
	Tampa, FL	X	X	
	Port St. Joe, FL			X
	Panama City, FL			X
	Pensacola, FL			X
	Mobile, AL			X
	Pascagoula, MS			X



EPA/SC. Dolaney

Tampa Harbor Dredged Material Disposal Project

The Tampa Harbor Dredged Material Disposal Project was a major dredging project by the U.S. Army Corps of Engineers in Tampa Bay, Florida, to widen and deepen the existing shipping channel to accommodate deeper draft vessels for the transport of phosphate ore. Approximately 9 million of the 70 million cubic yards of material removed from the channel were ocean disposed.

Interim disposal Site A, for the disposal of dredged material, is located approximately 13 nautical miles west of Egmont Key, at the mouth of Tampa Bay. Approximately five million cubic yards of dredged material were disposed at Site A from June 1980 until December 1982.

In April 1981, a study for the Manatee County Board of County Commissioners to evaluate the effects of offshore disposal of dredged material concluded that hard bottom habitats present at the boundaries of Site A were partially buried. In addition, hard bottom communities, including hard and soft corals and sponges, were present in the vicinity of the site. EPA began a search for an acceptable alternative disposal site in October 1981.

Manatee County filed a lawsuit in May 1982 against EPA and the Corps to halt the disposal of dredged material at Site A. In December 1982, the

court ordered the immediate cessation of disposal operations at Site A.

A total of eight alternative disposal sites were surveyed in 1983 and 1984. In November 1983, the Agency designated Site 4 as the disposal site for dredged material from the Tampa Harbor Project for a period of three years. Site 4, approximately 18 nautical miles west of Egmont Key, is a square site, two nautical miles on a side, with minimal hard bottom areas.

One of the stipulations of the designation of Site 4 was that the Agency would monitor the effects of disposal operations at Site 4, to assure that no significant adverse environmental effects due to disposal occurred beyond the boundaries of the site. The monitoring program was developed with extensive cooperative efforts between EPA, the Corps, other Federal, State, and local government agencies and scientists, and participation by the public.

Disposal of dredged material from the Tampa Harbor Project began at Site 4 in late May 1984, and continued through early October 1985, when the project was completed. Approximately 3.6 million cubic yards of material were deposited at the site in a narrow, east to west area extending for less than

one mile below the centerline of the site, and creating a substantial flat-topped mound. Since cessation of disposal operations, considerable algal and initial sponge and hard and soft coralline growth has occurred, as well as the establishment of habitat for fish and invertebrates.

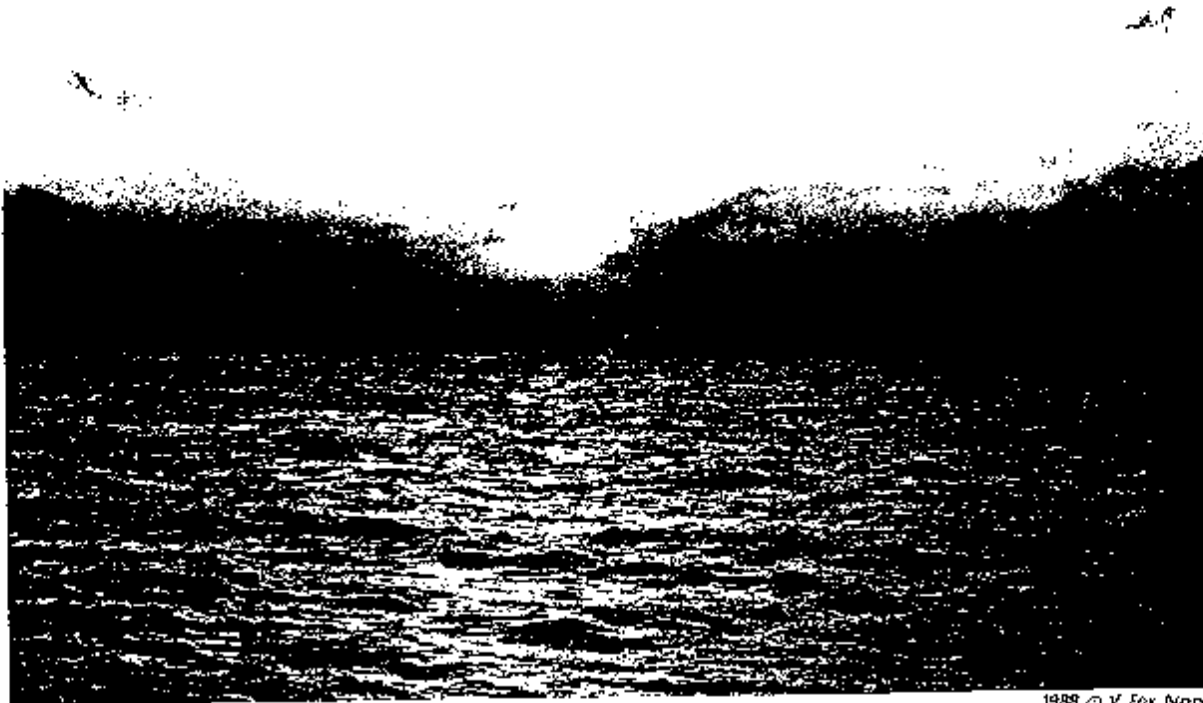
Monitoring surveys at Site 4 were completed by the Agency at approximately quarterly intervals in April, August, and December 1984, March and July of 1985, and semi-annually in January and July, 1986. During the late summer and fall of 1985, four major tropical storms or hurricanes passed near or over Site 4; a monitoring survey in January 1986 revealed neither damage to or movement of the dredged material mound, nor any damage at any of the 18 monitoring stations established on the

ocean bottom to monitor the potential spread of the dredged material. No significant spread of the dredged material was detected beyond the boundaries of the site. Site 4 has established new habitats for fish and invertebrates in a previously flat, sandy area.

Finally, the Agency held four meetings with various local interest groups, representatives of State agencies, the press, and the public, to explain the results of the extensive monitoring program the Agency has conducted in the Tampa area. These meetings, held in July 1985, November 1985, May 1986, and December 1986, were welcomed by the various groups and agencies as a means for understanding the implications of the Tampa Harbor Project.



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Incineration at Sea

On October 21, 1983, EPA made a tentative determination to issue (a) two special permits to Chemical Waste Management, Inc., and Ocean Combustion Services, B.V. (CWM/OCS), for incineration of up to 300,000 metric tons of mixed organic chemical wastes, including polychlorinated biphenyls, over a three-year period on-board the *Vulcanus I* and *Vulcanus II* at the Gulf Incineration Site; and (b) a six-month research permit for the *Vulcanus II* to incinerate DDT wastes at the Gulf Incineration Site. Public hearings were held in Brownsville, Texas, and Mobile, Alabama.

On April 23, 1984, the Hearing Officer recommended to the Assistant Administrator for Water that the special permits not be issued to CWM/OCS and that new research permits be issued in order to conduct further testing and monitoring. The Hearing Officer also recommended that any special permits be delayed until specific ocean incineration regulations were promulgated.

On May 23, 1984, the Assistant Administrator for Water made a final decision to deny issuance of the special and research permits. He called for development of a comprehensive research plan before any further research burns take place, and for regulations to be promulgated before issuance of any special permits.

Comprehensive incineration-at-sea regulations were proposed on February 28, 1985 (50 FR 8222). The regulations were developed under an extraordinarily open process designed to involve the public actively. In June 1984, interested parties were invited to attend two meetings to develop options for the regulations. Comments received at these meetings significantly influenced the final draft of the rule. The proposed regulations included criteria for reviewing and evaluating permit applications, conducting incineration operations at sea, and designating and managing ocean incineration sites. Written and verbal comments were accepted during the 120-day comment period, which closed on June 28, 1985.

Five public hearings were held on the proposed regulations during April and May in West Long Branch, New Jersey; New Orleans, Louisiana; Brownsville, Texas; San Francisco, California; and Mobile, Alabama. In addition, the Agency conducted numerous briefings and informational meetings and established a bilingual communications service in Brownsville. Five thousand one hundred forty-eight people registered at the five hearings, and 367 presented statements for the record. As of June 28, 1985, EPA had received 938 post cards and petitions containing over 4,500

separate comments. The Agency is evaluating these comments, and they will be addressed when a final rule is promulgated.

In January 1984, EPA initiated an Incineration Study to collect better information for EPA decisions on hazardous waste management options, particularly decisions related to ocean incineration. The study addressed five major areas: regulatory programs, incineration technologies, market considerations, comparison of risks from ocean- and land-based incineration, and public concerns. The final report, "Assessment of Incineration as a Treatment Method for Liquid Organic Hazardous Waste," was issued in March 1985 (EPA Office of Policy, Planning and Evaluation, Washington, D.C.).

In February 1984, EPA's Science Advisory Board (SAB) initiated a review of incineration of liquid hazardous wastes on land and at sea. The purposes of the review, as requested by the Administrator and Deputy Administrator of EPA, were to evaluate the overall adequacy of existing scientific data for use in future decisionmaking and to recommend areas for improvement. The SAB considered six areas: transfer of wastes, combustion and incineration processes, stack and plume sampling, environmental transport and fate processes, health and environmental effects, and research needs. The SAB's report was issued in April 1985.

During 1984 and 1985, the Agency prepared an Incineration-At-Sea Research Strategy that outlined how the Agency intends to evaluate further the environmental impacts of ocean incineration. The Research Strategy was initially developed in mid-1984 and provided to the public and scientists in draft form in the Fall of 1984. A public meeting was held on November 13, 1984, to discuss the draft strategy. The final version was issued on February 19, 1985. The research effort includes three phases: a land-based phase to verify analytical methods for sampling incinerator emissions and determining the aquatic toxicity of these emissions; an at-sea research burn to collect and test emission samples; and long-term studies.

During 1985 and 1986, the Agency proceeded to implement its Research Strategy. Four tests were conducted on a system that collects incinerator

emissions for chemical characterization and for analysis of toxicity to marine organisms. The Agency is also actively engaged in analyzing the sea surface microlayer to determine its composition, and to assess possible effects from incineration operations, as well as developing methods for scientifically sampling various environmental media.

In May 1985, two companies — At Sea Incineration, Inc. (ASI) and Chemical Waste Management (CWM) — applied for permits to conduct research consistent with the Agency's Research Strategy.

On December 16, 1985, EPA made a tentative determination to issue a research permit to CWM (50 FR 51360). ASI defaulted on government guaranteed loans. No permit was issued to ASI. The proposed research permit would have authorized CWM to incinerate fuel oils containing between 10 and 30 percent polychlorinated biphenyls at the North Atlantic Incineration Site over a 19-day period using one of the vessels' incinerators.

Public comments on the proposed research permit were accepted from December 16, 1985 to February 15, 1986. During this period, four public hearings were held in Philadelphia, Pennsylvania; Red Bank, New Jersey; Wilmington, Delaware; and Ocean City, Maryland. A total of 2,854 people registered at the hearings and 267 people presented statements. By the close of the comment period, the Agency received 1,644 submissions.

On May 1, 1986, the Hearing Officer submitted his report on the proposed permit. The report included a summary of the comments and the Hearing Officer's recommendations based on those comments.

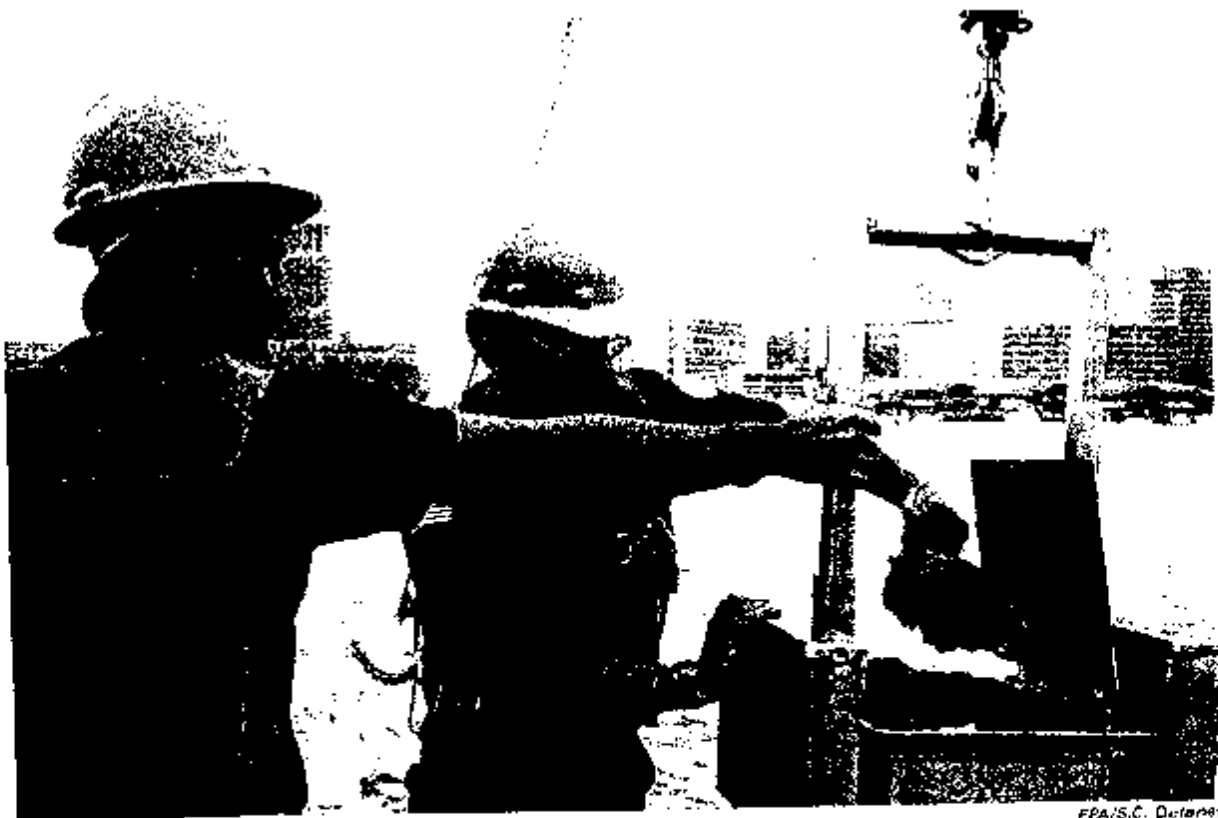
On May 28, 1986, EPA denied the permit application. The decision was related to the fact that the Hearing Officer's Report and the public comments established that an extensive number of issues raised should be addressed and resolved before granting a permit for a research burn. The EPA further stated that the more appropriate process would be to conclude promulgation of the ocean incineration regulations and then, based on the criteria established in the regulations, proceed to consider the issuance of research as well as other ocean incineration permits.

Near Coastal Waters Planning Initiative

In 1986, at the request of the Administrator of EPA, the Office of Water began a long-range Strategic Planning Initiative to address the problems of increasing degradation of the nation's near coastal waters (NCWs). The pressures exerted on the near-shore waters from growing populations, non-point source run-off, industrial and municipal discharges, and assorted waste disposal activities are increasing, and must be evaluated and addressed. The NCWs project, although it encompasses much more than ocean disposal, coordinates its activities with the ocean disposal program.

For purposes of the planning initiative, NCWs are

defined as estuaries and coastal marine waters including the territorial sea and the contiguous zone, including areas of greater distance where necessary to protect the coastal barrier islands and the mouths of certain estuaries. 1986 activities under the NCWs initiative included initial regional, state, public, and interagency outreach activities, the development of a detailed problem statement, and strategic options paper and implementation plan. The plan presents a series of regulatory and administrative remedies that can be used more effectively in future years to address and control environmental degradation in near coastal waters.



EPA/S.C. Deterney

Radiation Program

The following activities were undertaken by EPA's Office of Radiation Programs (ORP) from 1984-1986, in connection with previous at-sea disposal of low-level radioactive waste, as part of its continuing monitoring efforts and deepsea transport studies. In 1984, EPA, with the assistance of NOAA, began a monitoring program to acquire sediment and biota samples for radioactivity analyses. The data from these analyses are intended to provide baseline information on radioactivity levels in sediment and biota collected from numerous U.S. east and west coast ocean areas, both within and outside of sites formerly used by the United States for the ocean disposal of low-level radioactive wastes.

The EPA Eastern Environmental Radiation Facility (EERF) has analyzed sediment grab-samples collected in 1984 and 1985 from offshore areas of Central and Southern California, and sediment subcores from the Atlantic Ocean 2800-meter waste disposal area. A report is in preparation.

In May, 1984, EPA initiated a two-year study of near-bottom ocean currents in the Atlantic Ocean 3800-meter low-level radioactive waste disposal site, located on the lower continental rise near the mouth of the Hudson Submarine Canyon. NOAA assisted EPA by twice providing ship support services to accomplish the data collections and servicing of the array. The report will be issued in 1987.

In December 1984, EPA published a report titled "Data from Studies of Previous Radioactive Waste Disposal in Massachusetts Bay" (EPA Report #520/1-84-031), which presents results of studies conducted in 1981 and 1982 at the Massachusetts Bay low-level radioactive waste disposal site, and the Food and Drug Administration-EPA Boston District Marketplace Seafood Radioactivity Analysis Program.

In 1985 and 1986, EPA's Office of Radiation Programs, using the Navy's manned deep submersible, the *DSRV Avalon*, surveyed the ocean bottom and water column in the region of the two Farallon Islands low-level radioactive waste disposal sites, located approximately forty miles southwest of San Francisco at average depths of 900 meters and 1700 meters.

In November 1986, ORP began participating in both the Mussel Watch and Benthic Surveillance components of NOAA's National Status and Trends Program. Under this program, bivalves, fish, and sediment samples are being collected by NOAA for subsequent radioanalysis by the EPA EERF. Sampling stations are located inshore from formerly-used U.S. low-level radioactive waste disposal sites in the Atlantic and Pacific Oceans; control sites are located in the Gulf of Mexico.



EPA/SC. Delaney



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Enforcement

The U.S. Coast Guard has responsibility for surveillance activities to prevent unlawful dumping or unlawful transportation of materials for dumping, and to assure that authorized ocean dumping is performed in compliance with permit conditions.

Vessels and aircraft patrols, shipriders on board dumping vessels, in-port boardings and inspection, and Vessel Traffic Services radar are several methods used by the Coast Guard for surveillance of ocean dumping operations. The scheduling of surveillance resources is aided by a permit condition which requires permittees to give authorities advance notification prior to commencing any dumping operations.

Pursuant to Section 107(c) of the MPRSA and the regulations thereunder, information concerning violations of the Act and of ocean dumping permit

conditions is forwarded to EPA Regional Administrators for appropriate action when civil actions are indicated, or to the Attorney General of the United States for criminal cases. Suspected violations are documented by the Coast Guard to the maximum extent practicable and referred to EPA for investigation and determination of possible enforcement actions. Evidentiary material may include witness statements, photos, samples, message traffic, and log excerpts.

Two enforcement actions were taken by EPA in 1985. One was for dumping without a permit, and the other for burning outside the woodburning site.

In 1986, five enforcement actions were initiated by EPA: Two actions were taken by Region II; two in Region IV, and one in Region VI.



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